THE STATE OF WYOMING

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May 29, 1998

Richard Casey, Resident Manager
Solvay Minerals Incorporated
P.O. Box 1167
Green River, WY 82935

Re: FY '98 Annual Inspection Report

Dear Mr. Casey:

Please find enclosed with this letter a copy of the FY '98 Annual Inspection Report which Greg Meeker wrote based on his inspection of your plant in April of this year. If you find errors of substance in the report, please notify the Division of your concerns at your earliest convenience.

I would like to call your attention to the "AIR QUALITY CONCERNS" section on pages 21-23 of the report. These concerns are discussed more fully in the body of the report, but will be highlighted here for convenience.

1a. MD-282 Operating Permit (MBS Dryer NO_x Rate): As described in this report, permit MD-282 allowed Solvay to diversify their sodium sulfite plant by adding equipment to produce a new "sodium metabisulfite" (MBS) product ($Na_2S_2O_5$). This project involved construction of new digester, absorber and crystallizer equipment, with an MBS soda ash feed bin vent baghouse (AQD #72) and MBS dryer scrubber (AQD #73) as the emission points. The project also involved construction of a new product bagging facility. Other miscellaneous plant upgrades were also addressed in this permit, including the installation of a new 200 MM Btu/hr natural gas "low NO_x" burner on "C" Calciner (AQD #48), and the installation of two 6 MMBtu/hr natural gas-fired "pre-heaters" in the inlet ducts of the "A" & "B" Line steam tube dryers. Finally, MD-282 incorporated emission modifications made to four housekeeping dust control systems (AQD #64-Sulfite Blending Baghouse #2; AQD #65-Sulfite Blending Baghouse #1, AQD #66-Carbon/Perlite Additive Scrubber & AQD #67-Boiler Bottom Ash Baghouse) under a March '96 waiver from the Division.

Consistency

By April 29, 1998 letter, Solvay requested that the projects completed under the MD-282, be incorporated into the plant Section 30 operating permit.

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However, there remains an issue which must be resolved before issuance of an operating permit. In your 11/3/97 response to the FY '97 Annual Inspection, Solvay informed the Division that the "as constructed" MBS Dryer had a firing capacity of 2.5 MMBtu/hr, which is larger than the 1.5 MM Btu/hr design capacity considered in the permit. As a result, you requested permission to increase the allowable NO_x emission rate from 0.15 pph to 0.25 pph, based on the manufacturer's 0.1 lb/MM Btu NO_x emission guarantee.

Division Managers are currently reviewing a waiver for this revision, and Solvay should expect to receive confirmation of their decision on this matter shortly. Once this waiver is officially granted, you will be required to update your current Title V Operating Permit Application to reflect this revised equipment capacity. Please provide this office with a copy of your written notification, when you revise your Operating Permit application.

1b. MD-282 Operating Permit (AQD #15 Preheater NO_x Rate): As described in this report, installation of the air preheaters for AQD #15 stack "A" and "B" line steam tube dryers was completed in January '98. In your 11/3/97 response to the FY '97 Annual Inspection, Solvay informed the Division that the "as constructed" preheater burners actually had a firing capacity of 9.0 MM Btu/hr each, however, which is larger than the 6.0 MM Btu/hr design capacity considered in the permit. As a result, the allowable NO_x emission rate will increase from 1.20 pph to 1.80 pph, based on the manufacturer's 0.1 lb/MM Btu NO_x emission guarantee (Solvay's letter incorrectly stated that an emission factor of 0.15 lb/MM Btu was used in MD-282).

Division Managers are currently reviewing a waiver for this revision, and Solvay should expect to receive confirmation of their decision on this matter shortly. Once this waiver is officially granted, you will be required to update your current Title V Operating Permit Application to reflect this revised equipment capacity. Please provide this office with a copy of your written notification, when you revise your Operating Permit application.

1c. MD-282 Operating Permit (NO_x Testing): As described in this report, the FY '97 annual inspection raised the issue that NO_x testing of AQD #15 and AQD #73 had not been conducted. Last year's inspection transmittal letter stated that NO_x testing would not be required if Solvay could affirm that the burners were operating within the BACT limit of 0.1 lb/MMBtu for NO_x. Solvay's 11/3/97 response stated that these burners would be operated "within the manufacturer's operational design specifications so as not to exceed 0.1 lb NOx/MMBtu... ". The inspector's review of this matter concluded that because these are different burners than originally considered, the Division should see the details of the guarantee. Therefore in your response to this inspection transmittal, please provide a copy of

the manufacturer's written specifications for the burner sizes and guaranteed emission factors certifying 0.1 lb/MM Btu NO_x performance.

2. AQD #33 Sulfur Burner Testing: As described in this report, the Division waived permitting requirements for the AQD #33 sulphur burner modification which entailed lengthening the ductwork of the combustion chamber by four feet (5/2/97). The result of this modification was to be increased residence time of the sulphur in the combustion chamber prior to initial quenching, thereby allowing more sulphur to be burned and converted to SO_2 (design sulphur feed increased from 45 TPD to 55 TPD). The modification was completed in December '97, but a total of eight feet of ductwork was added, raising the sulfur burning capacity to 60 TPD. Solvay conducted NO_x and SO_2 testing on this stack March 31st, and the test report was submitted after the completion of this report, under May 15, 1998 cover.

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The report shows that testing was completed at a sulfur burn rate of 62 lb/minute (44.6 TPD), or 74% of the rated capacity. Emissions showed that SO_2 emissions averaged less than 0.05 pph, or less than 13% of the 0.40 pph allowable on this stack. NO_x emissions also averaged 0.05 pph, about 3% of the 1.50 pph allowable for this stack. Based on these results, the Division is satisfied that the AQD #33 sulfur burner stack is operating in compliance with terms of the permit waiver allowables, most recently codified under CT-1347. Please note that if future operations significantly exceed the 62 lb/min sulfur burn rate, additional testing could be required to verify emissions at these higher process rates.

3. NSR-K76 VOC Permit Application: As described in this report, in February of 1996, Solvay submitted a Section 21 permit application to address for plant-wide VOC emissions. An October '96 draft analysis of this project is currently being reviewed by the Air Quality Permitting Manager, Bernie Dailey, and Cheyenne Air Quality Management will determine whether this matter will be eventually pursued.

4. CT-1347 Permit Status: As described in this report, permit CT-1347 allowed Solvay to construct a fourth soda ash process line at 1.2 MM TPY capacity, brining the total plant rating to 3.6 MM TPY. The latest construction schedule was submitted March 19, 1998, showing three construction phases. Phase I (September, 2000 start up) consists of most of the new equipment, including the new calciner, dryer, and other associated equipment. Phase II (January, 2001 start up) includes the additional covered trona ore storage facility and additional crushing and screening units. Phase III (January, 2003 start up) includes additional evaporative capacity and the new package natural gas boiler. The existing calciners are to be modified with bucket elevators at the outlet, replacing existing drag conveyors and

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increasing design throughput to 200 TPH each. CA-1 and CA-3 have already been modified, with CA-2 scheduled for the first quarter of 1999.

Currently the Division understands that major equipment for the forth process line (calciner & dryer kiln shells) has been delivered to the site. In your response to this inspection transmittal, please provide an updated status report on the project, confirming whether the March 19, 1998 construction schedule is still accurate.

5. AQD #48 Calciner Testing: As described in this report, installation of bucket elevators at the outlet of the AQD #48 calciner and on the AQD #17 "A" calciner was completed in February '98 under CT-1347. Initial testing of the #48 calciner was performed March 31st, but preliminary results showed it was not meeting particulate or NO_x emission limits. Retesting of this calciner took place in April '98, along with initial testing of the #17 calciner. I note that your May 26, 1997 letter conveys these test reports to the Division. Preliminary indications are that particulate and NO_x are back in compliance for AQD #48 at 197 TPH ore rate. In addition, all parameters show compliance on the AQD #17 stack, however only CA-1 ore rate was near the final design conditions at 191 TPH, while CA-2, which does not yet have its bucket elevator replacement, operated at 145 TPH ore rate. Thus, the AQD #17 stack must be retested, after its modification is complete next year. The Division will review these reports for confirmation of these results.

6. Section 30 Operating Permit: As described in this report, Solvay's Section 30 operating permit application was determined to be administratively complete in 1996, but the Division's work backlog has delayed issuance of that permit. Revisions to the application were submitted 11/5/97 to include the D Train expansion, and to reduce some allowables on existing sources, while Solvay's 4/17/98 submittal presented more comprehensive revisions to include changes since the original November '95 permit application. As noted earlier in this letter, additional revisions are required for AQD #15 and AQD #73 NO_x emissions. As a result of these modifications, the issuance date for the Solvay Section 30 permit is currently undetermined.

7. Emission Inventory Validity: As described in this report, during this inspection, the inspector recorded the boiler electrostatic precipitator (ESP) control parameters and compared against the latest test data from the 8/12/97 RATA report. From this RATA report, the steam loads for both boilers were lower during the March '97 testing (#18 → 256K pph & #19 → 250K pph) than those observed during this inspection (#18 → 262K pph & #19 → 257K pph), and the RATA loads are only 83-85% of the design 300,000 pph capacity of these boilers. Thus the representativeness of the March '97 RATA testing for long term operation can be questioned.

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Also noted by this inspection was the fact that Solvay used the particulate emission rates from the 1997 RATA, as the actual rates in their 1997 Emission Inventory, even though Solvay did not submit the results of these tests (RATA report only provided SO_2/NO_x information - see discussion in Annual Emissions section of this report). Also, Solvay used particulate emission rates from April '97 testing on AQD #50 and #53 product housekeeping baghouses, even though no reports were submitted on those tests.

A couple of points must be made here. First is the fact that a RATA is a quality assurance check on a CEM system, and is not necessarily a compliance check on an emission source. The intent of the RATA is to compare stack test values against the instrument reading, and not against the emission limits. That is not to say that if done properly, RATA stack testing cannot be used for the dual purpose of compliance testing. If the company has clearly communicated their desire to use RATA testing for compliance purposes, has prepared a protocol which adequately indicates how process and control equipment operating conditions are to be documented, has given the Division adequate opportunity to observe the testing, and pays careful attention to assure that representative high load conditions are tested, then the report can be used for compliance/emission inventory purposes. However, unless proper these procedures are followed, the Division does not automatically consider results outside the instrument quality assurance realm.

The second point is that the Division does not accept Emission Inventory assertions that are not backed up by full Division participation in the capture and reporting of that data. "Engineering" testing for evaluation of some parameter for internal company review is perfectly acceptable for that purpose, but similar to the above discussion, that data cannot then automatically be converted to information the Division will rely on for compliance or emission inventory determinations. Once again, the validity of a test depends as much on advance communication, protocol, operating rates, and participation of the Division, as on the technical aspects of collecting, analyzing and reporting a pollutant.

In this case, the Division did not accept the Spring '97 particulate testing of the boilers and housekeeping baghouses, when confirming Solvay 1997 emissions, as there was no opportunity to verify procedures and conditions. If Solvay wishes to include such testing in future emission inventories, please pay attention to the procedural requirements for obtaining Division concurrence with the test results.

8. 1997 RATA Review: As described in this report, the 1997 Relative Accuracy Test Audits on the two coal-fired boilers (#18 and #19) were conducted in

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March, 1997, with the report submitted August 12, 1997. The Division's CEM Specialists have been contacted, and they will provide you with their conclusions at the completion of there review.

9. Mine Vent VOC Emissions: As described in this report, Solvay's 1997 VOC emissions inventory decreased dramatically from 1996 (nearly 3600 tons), primarily due to April '97 testing on the mine vent which showed much lower emission rates. Solvay had erroneously included the methane/ethane component in previous emissions calculations, but in the 11/3/97 response to the FY '97 Annual Inspection, tests indicated mine vent VOC emissions were actually 32.7 pph of C3+ compounds. Based on this information, request was made to credit their 1996 inventory fees.

   The Division's 1/9/98 review of the testing found several deficiencies in the test methods however, and rejected the test results. Thus mine vent retesting was required, and that work was completed on 1/20/98 per an approved 1/14/98 protocol (2/2/98 stack test observation memorandum). If you have not already done so by the time you respond to this inspection transmittal letter, please provide the test results from that January '98 testing with that response.

   Regarding fee adjustment, review shows that the results of the 11/96 tests comes out to 115 pph VOC emissions, without methane and ethane. This is the most recent emission result currently available, and therefore should have been used for both the '96 and '97 inventories. This emission rate translates to annual mine vent emissions of 504 tons of VOC for each of the last two years. A recommendation will be sent to Cheyenne Division Management to credit the 1996 VOC emissions fee total to reflect this change.

10. Alkaten Transloading: As described in this report, the FY '97 Annual Inspection Report documented the renovation of the Alkaten transloading baghouse system (AQD #45). Solvay conducted a trial of the rebuilt system in July '97, and according to your 11/3/97 inspection response, T-200 product was transloaded with no visual emissions. Copies of photos taken in July '97 were included with your letter and Division representatives looked at this transloader baghouse configuration during a March 31st inspection (4/6/98 memorandum). Based on these photos, and on the March inspection observations, the Division accepts that this source is now in compliance with opacity and emission regulations.

In this letter Solvay has been requested to provide a variety of information and reports on air quality compliance issues and concerns facing the plant. To assure that these issues are addressed in a timely fashion, I am requesting that Solvay respond to issues raised in the letter by June 19, 1998. If you will have difficulty meeting this deadline, please contact me to discuss the delay.

Thank you for the time your staff took to provide the necessary information to complete this report. The cooperation of Dolly Potter, her staff, and Solvay Management remains excellent, and the Division appreciates that close working relationship.

Sincerely,

Lee Gribovicz, P.E.
District Air Quality Engineer

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Enclosure